THAT WHICH IS CLAIMED IS:

1. A phased array antenna comprising:

a substrate;

an array of dipole antenna elements on said substrate, each dipole antenna element comprising a medial feed portion, and a pair of legs extending outwardly therefrom, adjacent legs of adjacent dipole antenna elements including respective spaced apart end portions; and

a respective impedance element electrically connected between the spaced apart end portions of adjacent legs of adjacent dipole antenna elements for providing increased capacitive coupling therebetween.

2. A phased array antenna according to Claim 1 wherein each impedance element comprises a capacitor.

3. A phased array antenna according to Claim 1 wherein each impedance element comprises an inductor.

4. A phased array antenna according to Claim 1 wherein each leg comprises:

an elongated body portion; and

an enlarged width end portion connected to an end of the elongated body portion.

5. A phased array antenna according to Claim 1 wherein adjacent legs of adjacent dipole antenna elements include respective spaced apart end portions having predetermined shapes and relative positioning for further increasing capacitive coupling between the

adjacent dipole antenna elements.

6. A phased array antenna according to Claim 5 wherein the spaced apart end portions in adjacent legs comprise interdigitated portions.

7. A phased array antenna according to Claim 5 wherein each leg comprises:

an elongated body portion;

an enlarged width end portion connected to an end of said elongated body portion; and

a plurality of fingers extending outwardly from said enlarged width end portion.

8. A phased array antenna according to Claim 1 wherein the phased array antenna has a desired frequency range; and wherein the spacing between the end portions of adjacent legs of adjacent dipole antenna elements is less than about one-half a wavelength of a highest desired frequency.

9. A phased array antenna according to Claim 1 wherein said array of dipole antenna elements comprises first and second sets of orthogonal dipole antenna elements to provide dual polarization.

10. A phased array antenna according to Claim 1 further comprising a ground plane adjacent said array of dipole antenna elements.

11. A phased array antenna according to Claim 10 wherein the phased array antenna has a desired

frequency range; and wherein said ground plane is spaced from said array of dipole antenna elements less than about one-half a wavelength of a highest desired frequency.

12. A phased array antenna according to Claim 1 wherein each dipole antenna element comprises a printed conductive layer.

13. A phased array antenna according to Claim 5 wherein said array of dipole antenna elements are sized and relatively positioned so that the phased array antenna is operable over a frequency range of about 2 to 30 GHz.

14. A phased array antenna according to Claim 1 wherein said substrate comprises a flexible substrate.

15. A phased array antenna according to Claim 1 wherein said substrate and said plurality of dipole antenna elements thereon form a first phased array antenna structure; and further comprising:

a second substrate, and a second plurality of dipole antenna elements thereon form a second phased array antenna structure; and

a coupler connecting said first and second phased array antenna structures together in a back-to-back relation so that the phased array antenna functions as a feedthrough lens antenna.

16. A phased array antenna comprising:

a substrate;

an array of dipole antenna elements on said substrate, each dipole antenna element comprising a medial feed portion, and a pair of legs extending outwardly therefrom, adjacent legs of adjacent dipole antenna elements including respective spaced apart end portions having predetermined shapes and relative positioning for providing increased capacitive coupling between the adjacent dipole antenna elements; and

a respective impedance element electrically connected between the spaced apart end portions of adjacent legs of adjacent dipole antenna elements for further providing increased capacitive coupling therebetween.

17. A phased array antenna according to Claim 16 wherein each impedance element comprises at least one of a capacitor and an inductor.

18. A phased array antenna according to Claim 16 wherein each leg comprises:

an elongated body portion;

an enlarged width end portion connected to an end of said elongated body portion; and

a plurality of fingers extending outwardly from said enlarged width end portion.

19. A phased array antenna according to Claim 16 wherein the phased array antenna has a desired frequency range; and wherein the spacing between the end portions of adjacent legs is less than about one-half a wavelength of a highest desired frequency.

20. A phased array antenna according to Claim 16 wherein said array of dipole antenna elements comprises first and second sets of orthogonal dipole antenna elements to provide dual polarization.

21. A method of making a phased array antenna comprising:

providing a substrate;

forming an array of dipole antenna elements on the substrate, each dipole antenna element comprising a medial feed portion, and a pair of legs extending outwardly therefrom, adjacent legs of adjacent dipole antenna elements including respective spaced apart end portions; and

electrically connecting a respective impedance element between the spaced apart end portions of adjacent legs of adjacent dipole antenna elements for providing increased capacitive coupling therebetween.

22. A method according to Claim 21 wherein each impedance element comprises at least one of a capacitor and an inductor.

23. A method according to Claim 21 wherein forming the array of dipole antenna elements comprises forming each leg with an elongated body portion, and with an enlarged width end portion connected to an end of the elongated body portion.

24. A method according to Claim 21 wherein the array of dipole antenna elements are formed so that adjacent legs of adjacent dipole antenna elements include

respective spaced apart end portions having predetermined shapes and relative positioning for further increasing capacitive coupling between the adjacent dipole antenna elements.

25. A method according to Claim 24 wherein forming the array of dipole antenna elements comprises forming the spaced apart end portions in adjacent legs with interdigitated portions.

26. A method according to Claim 21 wherein forming the array of dipole antenna elements comprises forming each leg with an elongated body portion, with an enlarged width end portion connected to an end of the elongated body portion, and with a plurality of fingers extending outwardly from the enlarged width end portion.

27. A method according to Claim 24 wherein the array of dipole antenna elements has a desired frequency range; and wherein the spacing between the end portions of adjacent legs is less than about one-half a wavelength of a highest desired frequency.

28. A method according to Claim 21 wherein forming the array of dipole antenna elements comprises forming first and second sets of orthogonal dipole antenna elements to provide dual polarization.

29. A method according to Claim 21 further comprising forming a ground plane adjacent the array of dipole antenna elements.

30. A method according to Claim 29 wherein the phased array antenna has a desired frequency range; and wherein the ground plane is spaced from the array of dipole antenna elements less than about one-half a wavelength of a highest desired frequency.

31. A method according to Claim 21 wherein forming the array of dipole antenna elements comprises printing a conductive layer to form each dipole antenna element.

32. A method according to Claim 21 wherein the array of dipole antenna elements are sized and relatively positioned so that the phased array antenna is operable over a frequency range of about 2 to 30 GHz.

33. A method according to Claim 21 wherein the array of dipole antenna elements are sized and relatively positioned so that the phased array antenna is operable over a scan angle of about +/- 60 degrees.